IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants	:	Takuya Tsukagoshi
Application No.	:	10/796,394
Filed	:	March 9, 2004
For	:	HOLOGRAPHIC RECORDING AND REPRODUCING APPARATUS

Examiner	:	Arnel C. Lavarias
Art Unit	:	2872
Docket No.	:	890050.468
Date	:	April 18, 2008

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPELLANT'S REPLY BRIEF UNDER 37 CFR 41.41

Commissioner for Patents:

This reply brief is in furtherance of the Notice of Appeal (filed on June 13, 2007) and of the Appellant's Brief (filed on August 13, 2007 and re-filed/amended on November 13, 2007) and in response to Examiner's Answer dated February 21, 2008. Applicants hereby request any fees necessary for acceptance of this Reply Brief to be charged to Deposit Account No. 19-1090.

Reply to Examiner's Arguments

Appellant wishes to focus on two positions taken by the Examiner in the Examiner's Answer with which there is strong disagreement. First, the Examiner's Answer's asserted on pages 12-13 that Curtis was cited to evidence that the confocal point between the Fourier transform lens and reverse Fourier transform lens may be shifted away from the location of the holographic recording medium. Second, the Examiner asserted on page 18 that the combined teachings of Tanaka and Bernal were cited to evidence that the pinhole disposed at the

confocal point may be located between the holographic recording medium and the Fourier transform lens.

Each of these two positions/arguments set forth by the Examiner's Answer is traversed herein.

I. Curtis does not teach shifting a confocal point

The Examiner's Answer has asserted that Curtis teaches that the confocal point of the Fourier and reverse Fourier transform lens may be shifted away from the location of the holographic recording medium such that the confocal point may be located either between the holographic recording medium and the Fourier transform lens or between the holographic recording medium and the reverse Fourier transform lens. This assertion in the Examiner's Answer is not correct.

Figures 10 and 11 of Curtis illustrate light transmitted through the Fourier transform lens 390 and converging at point 380 (i.e., a focal spot), which is shifted with respect to the Fourier transform plane 385. Claim 1 of Curtis clearly teaches that the power optics (*e.g.*, lens 390 in Figure 10 and lens 405 in Figure 11) are adapted to shift the object focus (i.e., a focal spot in the Fourier transform plane) out of the Fourier transform plane. The Fourier transform plane is located at the confocal point of the Fourier transform lens and reverse Fourier transform lens. The confocal point is a characteristic feature associated with each Fourier transform lens. *See e.g.*, dotted lines in Figures 10 and 11. The confocal point cannot be moved unless the Fourier lens is moved. The confocal point is a physical property of a particular lens. It appears that the Examiner is equating the confocal point with the focal spot of the optical system. The focal spot is the point 380 onto which parallel light impinged onto and transmitted through the Fourier transform plane is focused in "a standard 4F configuration." *See e.g.*, col. 2, lines 1-2 of Curtis. This is different from the confocal point.

It is apparent from Figures 10 and 11 that Curtis only teaches shifting the focal spot 380 onto which light transmitted through the Fourier transform lens 390 converges. The light converges in response to impinging the light not parallel with the optical axis onto the Fourier transform lens 390 and focusing the light onto a portion in front of (Figure 10) or behind (Figure 11) the Fourier transform plane 385. Curtis discloses shifting the object focus or focal spot away from the Fourier transform plane and does not teach or suggest shifting the confocal

point of the Fourier lenses away from the Fourier plane. Col. 12, lines 31-44 of Curtis discloses the "holographic recording medium 520 in the Fourier transform plane of lens 510" and claim 1 of Curtis discloses "a recording medium situated at a Fourier transform plane." Thus, the holographic recording medium must be located at the Fourier transform plane which is positioned at the confocal point.

Consequently, the teachings of Curtis cannot be used to evidence shifting of a confocal point between a holographic recording medium and a Fourier transform lens or between a holographic recording medium and a reverse Fourier transform lens.

Furthermore, the Examiner stated on pages 13-14 that Bernal explicitly discloses that both the holographic recording medium and the pinhole aperture are located at the Fourier plane. *See e.g.*, 'D' in Figure 1; first paragraph of col. 3. The Examiner further asserts that Curtis teaches shifting the confocal point. However, according to the above discussion, Curtis clearly does not teach shifting the confocal point. Thus, the Examiner cannot rely on Curtis for such teaching. Consequently, combining the teachings of Curtis and Bernal results in both the holographic recording medium and the aperture being located at the Fourier transform plane which is positioned at the confocal point.

Hence, the Examiner's Answer has failed to provide sufficient reasoning to support an assertion that Curtis teaches shifting a confocal point away from the holographic recording medium.

Accordingly, the rejection of claim 1 and its dependent claims based on the combination of Chou, Curtis and Bernal is improper and should be withdrawn.

II. The combination of Tanaka and Bernal does not teach a pinhole disposed at a confocal point positioned between the holographic recording medium and the Fourier transform lens

The Examiner's Answer contends that Tanaka was cited to evidence a confocal point shifted away from the location of the holographic recording medium such that the confocal point is located between the holographic recording medium and the Fourier transform lens. Additionally, the Examiner cited Bernal to evidence a pinhole aperture utilized at the location of the Fourier plane (i.e., the confocal point of Fourier transform lens and the reverse Fourier transform lens) of the 4F holographic optical system. The Examiner's Answer asserts that the

combination of Tanaka and Bernal teaches an apertures disposed at a confocal positioned between the holographic recording medium and the Fourier transform lens. Such assertion is traversed herein.

The Examiner contends that Figure 9 of Tanaka illustrates that the confocal point of the Fourier transform lens and reverse Fourier transform lens is shifted away from the location of the holographic recording medium such that the confocal point is located between the holographic recording medium and the Fourier transform lens. The Examiner further purports that Tanaka teaches a mask 50 (i.e., pinhole) disposed at the confocal point of the Fourier transform lens and reverse Fourier transform lens such that the mask 50 (i.e., pinhole) and the confocal point are disposed between the holographic recording medium and the Fourier transforms lens.

However, Figure 9 of Tanaka clearly shows a space between the mask 50 and the confocal point of the Fourier transform lens 13 and reverse Fourier transform lens 21. In other words, the confocal point is located on the side of the Fourier transform lens 13 with respect to the mask 50.

Furthermore, Bernal discloses an aperture D at the Fourier plane, namely the confocal point of lenses L1, L2. As such, Tanaka illustrates an aperture (i.e., mask 50) spaced from a confocal point while Bernal teaches an aperture D positioned at a confocal point. Thus, Tanaka and Bernal clearly disclose teachings that teach away from the other.

One of ordinary skill in the art would have to ignore the clear and unambiguous teaching of Tanaka which shows the mask 50 (i.e., aperture) positioned away from the confocal point in order to incorporate the teaching of Bernal's aperture, which is positioned at the confocal point, into the apparatus of Tanaka. Thus, Tanaka and Bernal cannot be combined.

The Examiner *must* take the references in their entirety, and cannot simply ignore portions that *teach away* from the claimed subject matter or otherwise argue against obviousness. *Bausch & Lomb v. Barnes-Hind/Hydrocurve, Inc.*, 230 U.S.P.Q. 416, 420 (Fed. Cir. 1986). It is impermissible to pick and choose from a reference only so much of it as will support a conclusion of obviousness to the exclusion of other parts necessary to a full appreciation of what the reference fairly suggests to one skilled in the art. *Id* at 419. The courts have long cautioned that consideration *must* be given "where the references diverge and *teach away* from the claimed invention." *Akzo N.V. v. International Trade Commission*, 1 U.S.P.Q.2d 1241, 1246 (Fed. Cir.

1986). In other words, the Examiner has not explained why one skilled in the art would ignore the clear and unambiguous teachings of Tanaka, that the mask 50 (i.e., aperture) is spaced from the confocal point, and instead the Examiner has tried to fit this incompatible/inconsistent teaching of Tanaka with Bernal to teach a pinhole disposed at the confocal point between the holographic recording medium and the Fourier transform lens, as recited in claim 1.

Accordingly, the rejection of claim 1 and its dependent claims based on the combination of Chou, Tanaka and Bernal is improper and should be withdrawn.

Conclusion

Applicants request that the Examiner's rejection be reversed and that the claims be allowed for the reasons stated herein and in the Appeal Brief filed on, August 13, 2007 and re-filed (amended) on November 13, 2007.

Respectfully submitted,
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